AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1. (Currently Amended) A radio receiver, comprising:

a front-end circuit operable to receive a plurality of radio signals, transmitted across a frequency band, by utilizing a plurality of aviation-specific modulation formats and which correspond to a plurality of aviation-specific radio channels and aviation-specific functions, and operable to generate an analog signal simultaneously carrying a plurality of channels within said frequency band, said front-end circuit comprising an intermediate frequency mixing circuit operable to translate the received radio signals to an intermediate frequency band and a filter circuit operable to filter the received radio signals, said filter circuit comprising a notch filter;

an analog to digital converter coupled to said front-end circuit, said analog to digital converter operable to convert said analog signal to a digital signal simultaneously carrying said plurality of channels within said frequency band; and

a digital processing system coupled to said analog to digital converter, said digital processing system operable to receive said digital signal and substantially simultaneously generate from said digital signal a plurality of aviation-specific output signals corresponding to a plurality of channels within said frequency band~~;~~

~~wherein the aviation-specific output signals comprise navigation signals, communication signals, automatic direction finder signals, and glide slope signals~~.

2. (Previously Presented) The radio receiver of claim 1, wherein said digital processing system generates at least one output signal comprising a time-domain multiplexed serial data link.

3. (Original) The radio receiver of claim 2, further comprising a controller coupled to said digital processing system, said controller operable to receive said time-domain multiplexed serial data link and generate a plurality of signals for transmission to a plurality of end devices.

4. (Original) The radio receiver of claim 1, wherein said digital processing system generates a plurality of output signals comprising a plurality of signals for transmission to a plurality of end devices.

5. (Original) The radio receiver of claim 1, wherein said front-end circuit comprises an antenna circuit operable to receive said radio signals.

6. (Previously Presented) The radio receiver of claim 5, wherein said front-end circuit further comprises an amplifier circuit operable to amplify said received radio signals.

7. (Canceled)

8. (Currently Amended) The radio receiver of claim 1 [[7]], wherein said filter circuit further comprises a filter selected from the group consisting of high-pass filter, low-pass filter, band-pass filter, ~~notch filter,~~ and combinations thereof.

9. (Canceled)

10. (Canceled)

11. (Previously Presented) The radio receiver of claim 1, wherein said digital processing system further comprises a digital down converter operable to select at least one of said channels within said frequency band, wherein said digital down converter selects said at least one of said channels according to configurable channel selection parameters.

12. (Original) The radio receiver of claim 11, wherein said configurable channel selection parameters are software configurable.

13. (Previously Presented) The radio receiver of claim 11, wherein said configurable channel selection parameters are selected from the group consisting of channel frequency, channel bandwidth, and combinations thereof.

14. (Previously Presented) The radio receiver of claim 1, wherein said digital processing system comprises a digital signal processor, said digital signal processor operable to extract information from at least one of said channels and generate at least one output signal, wherein said digital signal processor extracts said information from said at least one of said channels according to configurable channel decoding parameters.

15. (Original) The radio receiver of claim 14, wherein said configurable channel decoding parameters are software configurable.

16. (Previously Presented) The radio receiver of claim 14, wherein said configurable channel decoding parameters are selected from the group consisting of channel

frequency, channel modulation scheme, channel bandwidth, channel information format, and combinations thereof.

17. (Canceled)

18. (Currently Amended) A radio receiver, comprising:

at least one front-end circuit group comprising a plurality of front-end circuits, wherein each of said front-end circuits is operable to receive a plurality of radio signals, transmitted across a frequency band, by utilizing a plurality of aviation-specific modulation formats and which correspond to a plurality of aviation-specific radio channels and aviation-specific functions, and operable to generate an analog signal simultaneously carrying a plurality of channels within said frequency band, wherein at least one of said front-end circuits comprises an intermediate frequency mixing circuit operable to translate the received radio signals to an intermediate frequency band and a filter circuit operable to filter the received radio signals, said filter circuit comprising a notch filter;

at least one analog to digital converter coupled to said at least one front-end circuit group, said analog to digital converter operable to convert said analog signal to a digital signal simultaneously carrying said plurality of channels within said frequency band; and

a digital processing system coupled to said at least one analog to digital converter, said digital processing system operable to receive said digital signal from said analog to digital converter and substantially simultaneously generate from said digital signal a plurality of aviation-specific output signals corresponding to a plurality of said channels within said frequency band of at least one of said front-end circuits, said digital processing system comprising:

a digital down converter operable to select at least one of said channels within said frequency band of at least one of said front-end circuits; and

a digital signal processor coupled to said digital down converter, said digital signal processor operable to extract information from said at least one of said channels and generate at least one output signal;

wherein said radio signals received by any one of said front-end circuits are within a different frequency band than said radio signals received by the other of said front-end circuits~~; and~~

~~wherein the aviation-specific output signals comprise navigation signals, communication signals, automatic direction finder signals, and glide slope signals~~.

19. (Original) The radio receiver of claim 18, wherein said digital processing system is operable to generate a plurality of output signals, wherein each of said output signals corresponds to at least one of said channels within said frequency band of at least one of said front-end circuits.

20. (Canceled)

21. (Original) The radio receiver of claim 18, wherein each of said front-end circuits comprises an antenna circuit operable to receive said radio signals.

22. (Original) The radio receiver of claim 21, wherein at least one of said front-end circuits further comprises an amplifier circuit operable to amplify said received radio signals.

23. (Canceled)

24. (Canceled)

25. (Canceled)

26. (Previously Presented) The radio receiver of claim 18, wherein said digital down converter selects said at least one of said channels according to software configurable channel selection parameters.

27. (Previously Presented) The radio receiver of claim 18, wherein said digital signal processor extracts said information from said at least one of said channels according to software configurable channel decoding parameters.

28. (Original) The radio receiver of claim 18, comprising a plurality of front-end circuit groups and a plurality of corresponding analog to digital converters, wherein said digital processing system is operable to receive a plurality of digital signals from said analog to digital converters and generate at least one output signal corresponding to at least one of said channels within said frequency band of at least one of said front-end circuits of at least one of said front-end circuit groups.

29. (Currently Amended) A radio receiver, comprising:

a plurality of front-end circuits each of which comprises an antenna circuit operable to receive a plurality of radio signals, transmitted across a frequency band, by utilizing a plurality of aviation-specific modulation formats and which correspond to a

plurality of aviation-specific radio channels and aviation-specific functions, and operable to generate an analog signal simultaneously carrying a plurality of channels within said frequency band, wherein at least one of said front-end circuits comprises an intermediate frequency mixing circuit operable to translate the received radio signals to an intermediate frequency band and a filter circuit operable to filter the received radio signals, said filter circuit comprising a notch filter;

a plurality of analog to digital converters each of which is coupled to at least one of said front-end circuits, wherein each of said analog to digital converters is operable to convert said analog signal to a digital signal simultaneously carrying said plurality of channels within said frequency band; and

a digital processing system coupled to each of said analog to digital converters, said digital processing system operable to receive said digital signals from said analog to digital converters and substantially simultaneously generate from said digital signal a plurality of aviation-specific output signals corresponding to a plurality of said channels within said frequency band of at least one of said front-end circuits, said digital processing system comprising:

a digital down converter operable to select at least one of said channels within said frequency band of at least one of said front-end circuits; and

a digital signal processor coupled to said digital down converter, said digital signal processor operable to extract information from said at least one of said channels and generate at least one output signal;

wherein said radio signals received by any one of said front-end circuits are within a different frequency band than said radio signals received by the other of said front-end circuits~~;~~

~~wherein the aviation-specific output signals comprise navigation signals, communication signals, automatic direction finder signals, and glide slope signals~~.

30. (Original) The radio receiver of claim 29, wherein at least one of said front-end circuits further comprises an amplifier circuit operable to amplify said received radio signals.

31. (Canceled)

32. (Canceled)

33. (Original) The radio receiver of claim 29, wherein at least one of said analog to digital converters is operable to receive analog signals from a plurality of front-end circuits and convert said analog signals to a digital signal.

34. (Currently Amended) A method of receiving radio signals, comprising:

providing a radio receiver comprising:

one or more front-end circuits, wherein at least one of said front-end circuits comprises an intermediate frequency mixing circuit and a filter circuit comprising a notch filter tuned to remove an interfering signal from the received radio signals;

one or more analog to digital converters coupled to said one or more front-end circuits; and

a digital processing system coupled to said one or more analog to digital converters, said digital processing system comprising:

a digital down converter; and

a digital signal processor coupled to said digital down converter;

receiving at a plurality of the one or more front-end circuits a plurality of radio signals, transmitted across a frequency band, by utilizing a plurality of aviation-specific modulation formats and which correspond to a plurality of aviation-specific radio channels and aviation-specific functions, wherein said radio signals received by any one of said front-end circuits are within a different frequency band than said radio signals received by the other of said front-end circuits;

generating an analog signal from said received radio signals, said analog signal simultaneously carrying a plurality of channels within said frequency band;

translating said analog signal to an intermediate frequency band;

converting said analog signal to a digital signal simultaneously carrying said plurality of channels within said frequency band to thereby digitize said plurality of channels within said frequency band; and

substantially simultaneously generating from said digital signal a plurality of aviation-specific output signals corresponding to a plurality of said digitized channels within said frequency band~~, the aviation-specific output signals comprising navigation signals, communication signals, automatic direction finder signals, and glide slope signals~~.

35. (Original) The method of claim 34, further comprising amplifying said received radio signals.

36. (Original) The method of claim 34, further comprising filtering said received radio signals.

37. (Canceled)

38. (Previously Presented) The method of claim 34, wherein said output signals are generated by:

applying software configurable channel selection parameters to said digital signal to select at least one of said digitized channels within said frequency band;

extracting information from said at least one of said selected digitized channels according to software configurable channel decoding parameters; and

conveying said extracted information within said output signals.

39. (Previously Presented) The method of claim 38, wherein at least one of said output signals comprise a time-domain multiplexed serial data link.

40. (Original) The method of claim 39, further comprising generating a plurality of signals from said time-domain multiplexed serial data link for transmission to a plurality of end devices.

41. (Canceled)

42. (Previously Presented) The method of claim 34, wherein said plurality of output signals comprise a plurality of signals for transmission to a plurality of end devices.

43. (Currently Amended) A radio receiver, comprising:

a plurality of front-end circuits each of which is operable to receive a plurality of radio signals, transmitted across a frequency band, by utilizing a plurality of aviation-

specific modulation formats and which correspond to a plurality of aviation-specific radio channels and aviation-specific functions, and operable to generate analog signals that are combined into a composite analog signal simultaneously carrying a plurality of channels within said frequency band, wherein at least one of said front-end circuits comprises an intermediate frequency mixing circuit operable to translate the received radio signals to an intermediate frequency band and a filter circuit operable to filter the received radio signals, said filter circuit comprising a notch filter;

a single analog to digital converter operable to convert the composite analog signal to a single digital signal simultaneously carrying said plurality of channels within said frequency band;

a digital processing system operable to receive said digital signal from said analog to digital converter and substantially simultaneously generate from said digital signal a plurality of aviation-specific output signals corresponding to a plurality of said channels within said frequency band, said digital processing system comprising:

a digital down converter operable to select at least one of said channels within said frequency band; and

a digital signal processor coupled to said digital down converter, said digital signal processor operable to extract information from said at least one of said channels and generate at least one output signal~~;~~

~~wherein the aviation-specific output signals comprise navigation signals, communication signals, automatic direction finder signals, and glide slope signals~~.

44. (Previously Presented) The radio receiver of claim 43, wherein at least one of said output signals comprise a time-domain multiplexed serial data link.

45. (Previously Presented) The radio receiver of claim 44, further comprising a controller coupled to said digital processing system, said controller operable to receive said time-domain multiplexed serial data link and generate a plurality of signals for transmission to a plurality of end devices.

46. (Currently Amended) An aviation-band radio receiver, comprising:

a front-end circuit operable to receive a plurality of radio signals, transmitted across a frequency band, by utilizing a plurality of aviation-specific modulation formats and which correspond to a plurality of aviation-specific radio channels and aviation-specific functions, and operable to generate an analog signal simultaneously carrying a plurality of channels within said frequency band, wherein said frequency band comprises aviation-band radio signals, wherein said front-end circuit comprises an intermediate frequency mixing circuit operable to translate the received radio signals to an intermediate frequency band and a filter circuit operable to filter the received radio signals, said filter circuit comprising a notch filter tuned to remove an interfering signal from the received radio signals;

an analog to digital converter coupled to said front-end circuit, said analog to digital converter operable to convert said analog signal to a digital signal simultaneously carrying said plurality of channels within said frequency band; and

a digital processing system coupled to said analog to digital converter, said digital processing system operable to receive said digital signal and substantially simultaneously generate from said digital signal a plurality of aviation-specific output signals corresponding to a plurality of said plurality of channels within said frequency band, said digital processing system comprising:

a digital down converter operable to select at least one of said plurality of channels within said frequency band; and

a digital signal processor coupled to said digital down converter, said digital signal processor operable to extract information from said at least one of said plurality of channels and generate at least one output signal, wherein said digital signal processor controls said digital down converter;

wherein the aviation-specific output signals comprise navigation signals, communication signals, automatic direction finder signals, ~~and~~ or glide slope signals.

47. (Previously Presented) The aviation radio receiver of claim 46, wherein said aviation-band radio signals comprise aviation navigation radio signals.

48. (Previously Presented) The aviation radio of claim 46, wherein said aviation-band radio signals comprise aviation communication radio signals.

49. (Previously Presented) The aviation radio of claim 46, wherein said aviation-band radio signals comprise aviation navigation and aviation communication radio signals.

50. (Previously Presented) The aviation radio receiver of claim 49, wherein said digital processing system generates at least one output signal comprising a time-domain multiplexed serial data link.

51. (Previously Presented) The aviation radio receiver of claim 50, further comprising a controller coupled to said digital processing system, said controller operable to receive said time-domain multiplexed serial data link and generate a plurality of signals for transmission to a plurality of end devices.

52. (Previously Presented) The aviation radio receiver of claim 46, wherein said digital processing system generates a plurality of output signals comprising a plurality of signals for transmission to a plurality of end devices.

53. (Currently Amended) An aviation radio receiver comprising:

at least one front-end circuit group comprising a plurality of front-end circuits, wherein each of said front-end circuits comprises an antenna circuit operable to receive radio signals and an amplifier circuit operable to amplify radio signals, said front-end circuits operable to receive a plurality of radio signals, transmitted across a frequency band, by utilizing a plurality of aviation-specific modulation formats and which correspond to a plurality of aviation-specific radio channels and aviation-specific functions, and operable to generate an analog signal simultaneously carrying a plurality of channels within said frequency band, wherein said radio signals comprise aviation navigation and aviation communication radio signals, wherein at least one of said front-end circuits comprises an intermediate frequency mixing circuit operable to translate the received radio signals to an intermediate frequency band and a filter circuit operable to filter the received radio signals, said filter circuit comprising a notch filter tuned to remove an interfering signal from the received radio signals;

at least one analog to digital converter coupled to said at least one front-end circuit group, said analog to digital converter operable to receive said analog signal from said front-end circuits and convert said analog signal to a digital signal simultaneously carrying said plurality of channels within said frequency band; and

a digital processing system coupled to said at least one analog to digital converter, said digital processing system operable to receive said digital signal from said analog to digital converter and substantially simultaneously generate from said digital signal a plurality of aviation-specific output signals corresponding to a plurality of said channels within said frequency band of at least one of said front-end circuits,

said digital processing system comprising:

a digital down converter operable to select at least one of said channels within said frequency band of at least one of said front-end circuits; and

a digital signal processor coupled to said digital down converter, said digital signal processor operable to extract information from said at least one of said channels and generate at least one output signal;

wherein said radio signals received by any one of said front-end circuits are within a different frequency band than said radio signals received by the other of said front-end circuits; and

wherein the aviation-specific output signals comprise navigation signals, communication signals, automatic direction finder signals, ~~and~~ or glide slope signals.

54. (Canceled)

55. (Canceled)

56. (Canceled)

57. (Currently Amended) A method of receiving aviation-band radio signals, comprising:

providing a radio receiver comprising:

a plurality of front-end circuits, wherein at least one of said front-end circuits comprises an intermediate frequency mixing circuit and a filter circuit comprising a notch filter tuned to remove an interfering signal from the received radio signals;

one or more analog to digital converters coupled to said plurality of frontend circuits; and

a digital processing system coupled to said one or more analog to digital converters, said digital processing system comprising:

a digital down converter; and

a digital signal processor coupled to said digital down converter;

receiving at the plurality of front-end circuits a plurality of radio signals, transmitted across a frequency band, by utilizing a plurality of aviation-specific modulation formats and which correspond to a plurality of aviation-specific radio channels and aviation-specific functions, said radio signals comprising aviation navigation and aviation communication radio signals, wherein said radio signals received by any one of said front-end circuits are within a different frequency band than said radio signals received by the other of said front-end circuits;

generating an analog signal from said received radio signals, said analog signal simultaneously carrying a plurality of channels within said frequency band;

translating said analog signal to an intermediate frequency band;

converting said analog signal to a digital signal simultaneously carrying said plurality of channels within said frequency band to thereby digitize said plurality of channels within said frequency band; and

substantially simultaneously generating from the digital signal a plurality of aviation-specific output signals corresponding to a plurality of said digitized channels within said frequency band, the aviation-specific output signals comprising navigation signals, communication signals, automatic direction finder signals, ~~and~~ or glide slope signals.

58. (Canceled)

59. (Previously Presented) The method of claim 57, wherein said output signals are generated by:

applying software configurable channel selection parameters to said digital signal to select at least one of said digitized channels within said frequency band;

extracting information from said at least one of said selected digitized channels according to software configurable channel decoding parameters; and

conveying said extracted information within said output signals.

60. (Previously Presented) The radio receiver of claim 1, wherein said digital processing system is operable to receive said digital signal and substantially simultaneously generate a plurality of output signals corresponding to more than one of said plurality of channels within said frequency band.

61. (Currently Amended) The radio receiver of claim 46 [[1]], wherein the navigation signals comprise aircraft navigation signals corresponding to broadcast signals in the range from about 108 MHz to about 118 MHz.

62. (Currently Amended) The radio receiver of claim 46 [[1]], wherein the navigation signals comprise aeronautical navigation signals corresponding to broadcast signals in the range from about 960 MHz to about 1215 MHz.

63. (Currently Amended) The radio receiver of claim 46 [[1]], wherein the communication signals correspond to broadcast signals in the range from about 118 MHz to about 137 MHz.

64. (Currently Amended) The radio receiver of claim 46 [[1]], wherein the automatic direction finder signals correspond to broadcast signals in the range from about 190 kHz to about 2.3 MHz.

65. (Currently Amended) The radio receiver of claim 46 [[1]], wherein the glide slope signals correspond to broadcast signals in the range from about 328.6 MHz to about 335.4 MHz.